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I also certify that the application is now proceeding in the name as identified herein.

I also certify that the attached copy of the request for grant of a Patent (Form 1/77) bears an amendment, effected by this office, following a request by the applicant and agreed to by the Comptroller-General.

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GB 0228615.1

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Incorporated in the United Kingdom,

[ADP No. 08698375001]

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09DEC02 E769522-1 D01072
P01/7700 0.00-0228615.1

Request for grant of a patent 7 DEC 2002

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1. Your Reference

PUK021285

2. Patent Application Number

0228615.1

3. Full name, address and postcode of the or of
each applicant

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Patents ADP Number

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If the applicant is a corporate body, give the
country/state of its incorporation

SECTION 90 (1977 ACT) APPLICATION FILED 26/8/03
1821404002

8522955001

4. Title of the invention

Trolley Device

5. Name of your agent

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Patents ADP number

5608575007

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Country

Priority Application Number

Date of Filing

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Number of earlier application

Date of filing

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Yes

Patents Form 1/77

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Description

8 /

Claim(s)

3 /

Abstract

1 /

Drawing(s)

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Priority documents

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Statement of Inventorship and right to grant of a patent (Patents Form 7/77)

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Request for substantive examination (Patents Form 10/77)

Any other documents

11. I/We request the grant of a patent on the basis of this application

Signature *Hepworth, Lawrence, Bryer & Bigley* Date 6 December 2002

12. Name and daytime telephone number of person to contact in the United Kingdom. Mr G C March 01788 577000

TROLLEY DEVICE**DUPLICATE**

This invention is concerned with a trolley device. More particularly the invention is concerned with a trolley device intended for moving containers, and particularly open-topped garden containers from one position to another.

Container gardening has increased in popularity over the years, the growth in popularity encouraged by media coverage directed to gardening activities and also by numerous books and magazines. Virtually all garden centres supply an extensive range of pots and similar gardening containers to suit different tastes and types of gardens.

When these containers are filled with material such as soil or compost and especially when holding a growing shrub or other plant, they become heavy and hence difficult or awkward to move around manually. Frequently more than one person is required to lift and move a filled container from one location to another. There is a need for such filled open containers to be moved around as a result of seasonal changes, the need to replenish soil or to replace plants and shrubs, or simply to provide a more attractive appearance.

In particular, when medium sized or larger pots or containers have been filled with soil they become difficult and awkward to move even more so when they contain well established plants or shrubs. Displacing such filled open-topped containers from one location to another therefore risks discomfort or possible injury to persons lacking appropriate physical strength, the elderly and people tending to suffer back pain. This problem in moving filled open-topped containers is greater when the containers are already located in saucers or trays having an external lip projecting above ground level, frequently the case when open-topped containers such as plant or shrub pots are situated on decking or within conservatories. Moreover garden centres and other retail outlets also need regularly to move individual display pots around. It is accordingly an object of the present invention to provide a trolley device which provides assistance in the lifting and moving of open-topped containers, particularly pots containing soil and or compost with or without plants or shrubs therein. In particular the present invention seeks to provide such a trolley device capable of lifting and moving such containers by one operative and with a minimum of physical effort.

According to this invention there is provided a trolley device capable of lifting and moving an open topped container, comprising a body part having handle means and means which permit movement of the device along a surface, the body part having primary container-contacting means including at least one container-contacting part located above ground level when said body part is upright which can engage a lower external side of such a container, and secondary container contacting means including at least one container-contacting part spaced above the said primary contacting means when said body part is upright and which can engage an upper internal side of the container, said body part capable of pivoting in a manner to raise both said container-contacting means.

The body part preferably comprises an elongate length of tubing such as metal tubing, which may have for example a rectangular or square cross-section. The body part may comprise a plurality of such elongate tubular members which further may preferably be located in a framework wherein a plurality of elongate tubular members are generally parallel. The handle means conveniently comprises a handle portion in the form of an elongate length of tubing which is attached to the body part or which may alternatively comprise an integral part thereof. The handle means may further comprise at its remote end gripping means such as a rubber or foamed sleeve. The means which permit movement of the device may comprise a wheeled chassis, for example a pair of opposing plate members can be spaced apart and connected to form a generally rectangular housing, in which an axle is located, with wheels provided at the remote ends of the axle. Such a wheeled chassis can either be separate from the body part in which case it is conveniently attached thereto by bolts or other suitable fasteners, or alternatively it may comprise an integrally formed part of the said body part. For ease of use and ease of manufacture it is however generally preferred for the said means which permit movement of the device along the surface to comprise a separately attachable wheeled chassis. Such wheeled chassis is most conveniently adapted to permit conversion of the trolley device from a light duty embodiment to a heavy duty embodiment. For instance, in such a heavy duty embodiment additional lengths of elongate tubing can be affixed to opposing ends of the chassis part whereby the body part becomes an arrangement incorporating three generally parallel elongate lengths of tubing within a framework. Whilst wheels are preferred for such a chassis, other means for permitting transport of the device along the surface could be substituted. It is preferable for the body part to be capable of pivoting about the means which permit movement, for example the body part can swivel about such a wheeled chassis.

The primary container-contacting means preferably comprises a pair of projecting spigots, which may extend from one surface of such a wheeled chassis. For example such primary container-contacting means can comprise short lengths of hollow tubing or preferably solid section material such as steel being either round or square cross-section and fitted at their ends spaced from the chassis with frictional grips such as rubber ferrules which in use are adapted to engage an external lower side of an open-topped container such as a plant pot. Most preferably, the primary container-contacting means comprise elongate sections of solid round section steel, reduced at one end to pass through the chassis sections with a distance piece between and secured with a washer and locknut. This method of assembly adds stiffness to these load bearing members of the device. In such arrangement, the container-contacting parts of the primary container-contacting means comprise the said frictional grips. When the trolley device is positioned with the means which permit movement in contact with the ground and such that the body part is upright, such container-contacting parts of the primary container-contacting means are spaced above ground level. Conveniently such container-contacting parts of the primary container-contacting means remain in fixed position relative to the wheeled chassis if present, and relative to the body part. In alternative arrangements, the said primary container-contacting means may be moveable with respect to the said wheeled chassis and body part.

As already indicated above the most preferred containers to be used with the device comprise plant or shrub pots which contain significant soil and/or compost together with a shrub or similar plant material. Preferably the lower external side of the pot to be engaged by the said container-contacting parts of the primary container-contacting means comprises surface parts around the external circumference of the container, a short distance above ground level.

The secondary container-contacting means preferably comprises a moveable carriage whose position relative to the body part can be varied. The secondary container-contacting means can be displaceable along a length of the body part so that the distance between the preferably fixed primary container-contacting means and the secondary container-contacting means can be varied whereby a variable spacing between the two container-contacting means is provided. The secondary container-contacting means includes at least one but preferably two container-contacting-parts which, when the body part is upright, are located above the said primary contacting means. The container-contacting part or parts of the secondary container

contacting means preferably comprise hook members. A pair of similar hook members can be affixed to one part of the secondary container-contacting means. For example, such hook members can be securely fastened to a plate member which forms part of a moveable carriage. The hook members preferably have remote ends spaced from the moveable carriage and which are directed inwardly towards the body part of the device, whereas the remote ends of the container-contacting parts of the primary container-contacting means preferably project outwardly with respect to the said body part.

Such hook members are preferably arranged whereby the said remote ends are arranged to permit contact with an internal upper side of an open-topped container. For example, these container-contacting parts of the secondary container-contacting means may comprise prongs positioned relative to the body part to engage internal upper circumferential parts of an open topped container such as a pot. Preferably such parts of the open-topped container are internal surfaces situated just below a rim on the internal sidewall of the container.

It is preferred that one of the container-contacting means is moveable relative to the other along the said body part. It is also preferred that the said one of the container-contacting means which is moveable, comprises a moveable carriage. Such moveable carriage preferably incorporates a releasable clamp mechanism.

Such clamp mechanism, where provided, is preferably releasably spring urged in frictional engagement with the body part to maintain its selected position on the body part and resist displacement therefrom until required by a user of the device.

The secondary container-contacting means are preferably moveable linearly along the body part towards and away from the preferably fixed primary container-contacting means. Moveable secondary container-contacting means, where provided, are preferably adapted to be displaced along the said body part by a hand or foot operable member such as a pivoting plate, or by other means such as a lever extending in the region of the handle means.

The secondary container-contacting means preferably comprises a pair of generally parallel plates, such as metal plates, interconnected by a joining segment having an aperture through which the body part passes. The primary container-contacting means preferably includes means to enhance frictional engagement between said primary container-contacting means

and an external lower sidewall of a container. The primary container-contacting means and the secondary container-contacting means preferably each comprise at least two container-contacting formations.

The body part of the trolley device preferably comprises one elongate length of tubing in light duty embodiments, whereas the body part preferably comprises a plurality, such as three, spaced apart generally parallel upright elongate lengths of tubing in heavy duty embodiments.

In order that the invention may be illustrated, more easily appreciated and readily carried into effect, embodiments thereof will now be described by way of non limiting examples only with reference to the accompanying drawings wherein:

Figures 1A to 1D show use of one preferred trolley device according to the invention in connection with raising, moving and lowering an open-topped container;

Figure 2 is an isometric view of one preferred light duty embodiment of the present invention;

Figure 3 is an isometric view of an alternative embodiment for heavy duty applications;

Figure 4 is a part sectional elevation of one suitable form of secondary container-contacting means;

Figure 5 is a part sectional elevation of a trolley device in either light or heavy duty form showing means for actuating displacement of the secondary container-contacting means;

Figure 6 shows two detailed views of an alternative container contacting part of the secondary container-contacting means; and

Figures 7(a) and 7 (b) show views of the trolley device carrying and moving different types of open-topped containers which need not incorporate a shrub or other plant material.

Referring to the drawings and initially to Figures 1A to 1D, these illustrate a wheeled trolley device which allows for the lifting and moving of garden pots and similar articles of various diameters, shapes, heights, and weights with limited, if any, need for manual effort being applied to the pot itself. The wheeled trolley device attaches itself to one side of the pot only, by means of shaped hooks and rubber ferruled bars, eliminating the need for any type of lifting support beneath the base of the pot. The result is an open topped container handling technique with minimum effort by the user.

Figures 2 & 3 show a bolted modular approach to the trolley assembly that allows it to be built either as a light duty unit or as a heavy duty unit, with many parts of light and heavy duty embodiments being interchangeable. The light unit has a body part in the form of a single central square tubular member 1 carrying the movable carriage assembly 2 with hooks 3 attached and one handle 4. For the heavy duty unit, the short square tubes carrying the axle 5 are removed from the lower stretcher sections 6 of the wheeled chassis and replaced with two side members 7 identical to the central tube 1 forming a rigid generally planar framework. Additional stretcher sections 8 are bolted across the top and two handles 9 attached instead of the central one. The moveable carriage assembly 2 remains on the central tube. Wheel axles 10 are reversible to allow either single or double wheels to be fitted, the latter providing a larger footprint on softer ground if required. The lower stretcher 5 of the wheeled chassis carries two fixed support bars and rubber pot protection ferrules 11 at their distant ends.

Figure 4 shows the central square section tube 1 body part and the moveable carriage assembly 2 which adjusts for different heights of pots. It comprises a front plate 12 that carries the shaped hooks 3 and a back plate 13. These plates are held together with spacers 14 and bolts through, terminating with self-locking nuts 15, and act as a guide for the assembly. A bracket 16 is attached to the back plate 13 and serves as a lifting point for raising the moveable carriage assembly 2. It also acts as a support for the spring 17 which exerts an upward force to the underside of the locking plate 18. This plate is hinged at its front edge by being contained in a vee-shaped fold on the front plate 12. The arrangement results in a wedging action on the central square tube 1 and any downward movement of the hooks is prevented. Release of the sliding mechanism locking plate 18 is by downward pressure to its rear edge e.g. by foot or hand operation whereby the assembly will move down and lock again when pressure is removed.

Figure 5 demonstrates an additional means for operating the moveable carriage assembly, supplementary to the previous method. It comprises a vertical operating rod 19, with knob attached, sliding in a bearing bracket 20. Its lower end passes through the edge of the locking plate 18 and the folded vee of the front plate 12 and terminates with a self-locking nut 21. Attached to the operating rod 19 immediately above the locking plate is a fork-shaped pressure plate 22 positioned by means of nuts on both sides and having its rear ends turned down to make contact with the upper surface of the locking plate 18. A downward force applied to the operating rod 19 in turn applies a force to the locking plate 18 and the moveable carriage assembly 2 with hooks attached moves down to its new position and automatically locks on release of pressure. An upward pull on the operating rod 19 allows the self locking nut 23 on the lower end of the rod to come in contact with the right-angled bend of the front plate 12. Movement upwards is accomplished by the locking plate 18 self releasing and locking again when movement ceases.

Figures 1A to 1D show the trolley in use. It is placed slightly forward of vertical to the side of the pot, with the hook mechanism in the upward position and the rubber ferruled support bars 11 in contact with an external lower surface 24 of the pot. The hooks 3 are then forced down into the soil, or against an internal upper surface 25, conveniently the inside edge of the pot, by either of the aforementioned methods -i.e. using the operating rod (when fitted) or by depressing the rear edge of the locking plate 18 by hand or by foot. Pivotal movement backwards about the axle of the wheeled chassis using the trolley handle(s) raises the primary and secondary container contacting means which lifts the pot clear of the ground, and also out of a saucer if one is present. It can now be wheeled away. After it has been lowered to the ground, release of the pot can also be achieved in two ways, either by pulling upward on the operating rod or by lifting the bracket 16 by foot or by hand. For parking and user safety the moveable carriage can be lowered to its maximum limit whereby the hooks will pass between the support bars and be protected. The trolley will now stand at rest in the near vertical position.

An alternative hook attachment is shown in Figure 6. If hooks of a different shape are required for special purposes then a collet system can be fitted. The double hook 28 is made from one-piece high tensile spring wire and with collets nuts 29 in place it can be quickly attached as shown.

With reference to Figure 7a, shrubs and the like located in a non-rigid container 26 can be lifted and moved more efficiently by replacing the rubber ferrules with a hard pointed alternative 30 to achieve a better grip.

With reference to Figure 7b, plastic garden rubbish containers 27 with semi-rigid surfaces can also be moved with embodiments of the present trolley device.

A convenient trolley device is thus provided which enables one operative with the minimum of effort to lift relatively heavy open topped containers and move them to almost any required alternative position. A principal advantage stems from the absence of any part of the device to be intentionally located underneath a container, and the trolley device being capable of completing the lifting task without any need initially to partially raise or pivot the container manually.

CLAIMS

1. A trolley device capable of lifting and moving an open topped container, comprising a body part having handle means and means which permit movement of the device along a surface, the body part having primary container-contacting means including at least one container-contacting part located above ground level when said body part is upright which can engage an external side of such a container, and secondary container contacting means including at least one container-contacting part spaced above the said primary contacting means when said body part is upright and which can engage an internal side of the container, said body part capable of pivoting in a manner to raise both said container-contacting means.
2. A trolley device as claimed in claim 1, wherein one of the container-contacting means is moveable relative to the other along the said body part.
3. A trolley device as claimed in claim 2, wherein the said one of the container-contacting means comprises a moveable carriage which preferably incorporates a releasable clamp mechanism.
4. A trolley device as claimed in claim 3, wherein the clamp mechanism is releasably spring urged in frictional engagement with the body part.
5. A trolley device as claimed in any one of claims 2 to 4 wherein the secondary container-contacting means are moveable along the body part towards and away from the primary container-contacting means.
6. A trolley device as claimed in claim 5 wherein the moveable secondary container-contacting means is adapted to be displaced along the body part by a hand or foot operable member or by actuation means in the region of the handle means.
7. A trolley device as claimed in any preceding claim wherein the secondary container-contacting means includes at least one hook member adapted to engage an

upper internal sidewall of said open topped container below an uppermost internal rim thereof.

8. A trolley device as claimed in claim 7 wherein a pair of hook members are provided whose ends project towards the body part.

9. A trolley device as claimed in claim 8 wherein the secondary container-contacting means further comprise a pair of generally parallel plates interconnected by a joining segment having an aperture through which the body part passes.

10. A trolley device as claimed in any preceding claim wherein the body part includes or is otherwise attached to a wheeled chassis.

11. A trolley device as claimed in claim 10, wherein the primary container-contacting means are mounted upon the chassis and project outwardly thereof.

12. A trolley device as claimed in any preceding claim wherein the primary container-contacting means include means to assist a frictional engagement between said primary means and the lower external sidewall of a container .

13. A trolley device as claimed in any preceding claim wherein the primary container-contacting means and the secondary container-contacting means each comprise at least two container-contacting formations.

14. A trolley device as claimed in any preceding claim wherein the body part comprises at least one elongate length of tubing.

15. A trolley device as claimed in claim 14, wherein the body part comprises three spaced apart generally parallel upright elongate lengths of tubing.

16. A trolley device as claimed in any preceding claim in combination with an open topped container.

17. A trolley device as claimed in any preceding claim substantially as herein described.

18. A trolley device as claimed in any one of claims 1 to 16 substantially as herein illustrated in any figure of the accompanying drawings.

ABSTRACT

A trolley device capable of lifting and moving an open topped container, comprising a body part having handle means and means which permit movement of the device along a surface, the body part having primary container-contacting means including at least one container-contacting part located above ground level when said body part is upright which can engage a lower external side of such a container, and secondary container contacting means including at least one container-contacting part spaced above the said primary contacting means when said body part is upright and which can engage an upper internal side of the container, said body part capable of pivoting about the said means which permit movement to raise both said container-contacting means.

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PATENT APPLICATION

Trolley for moving pots

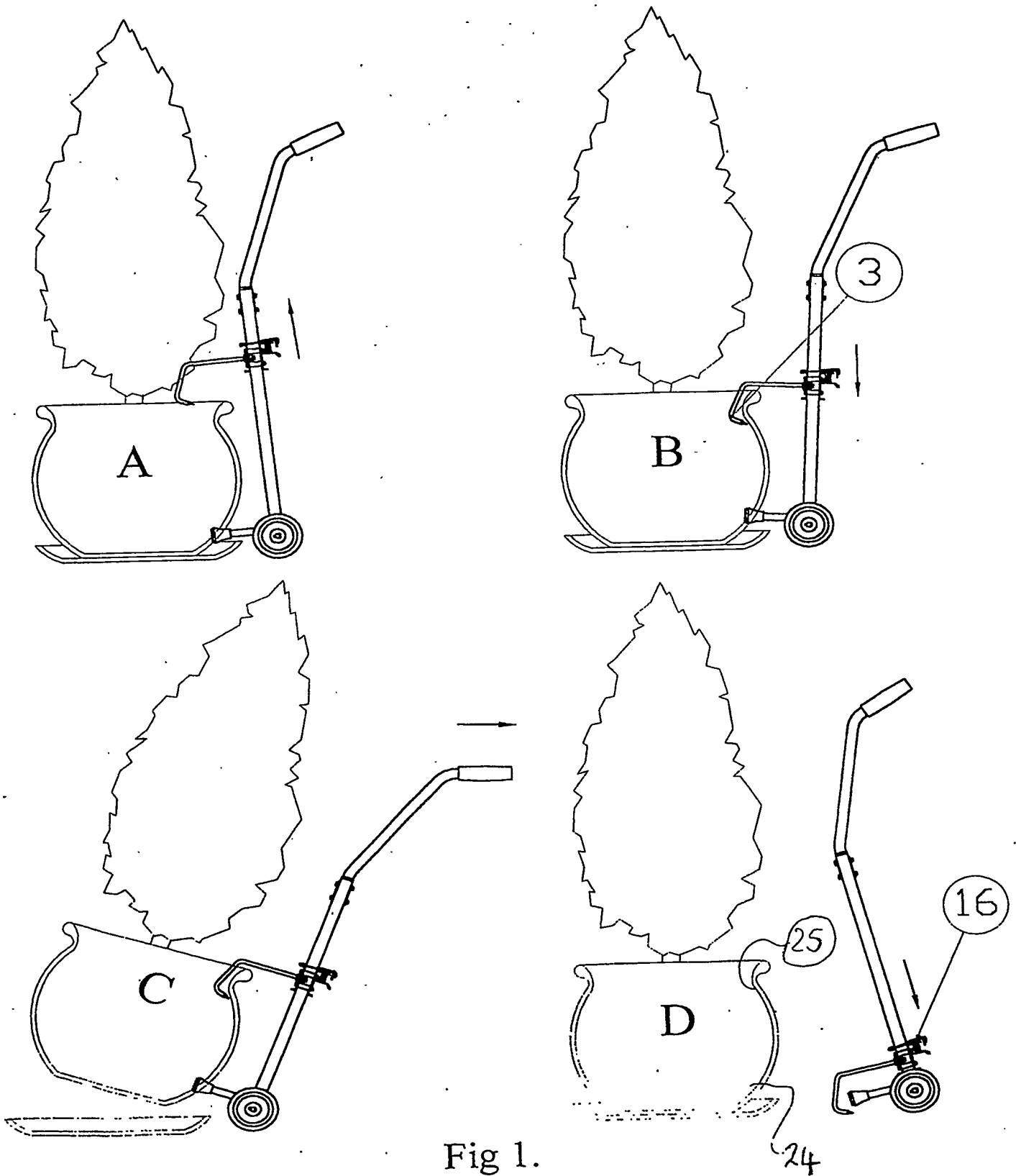
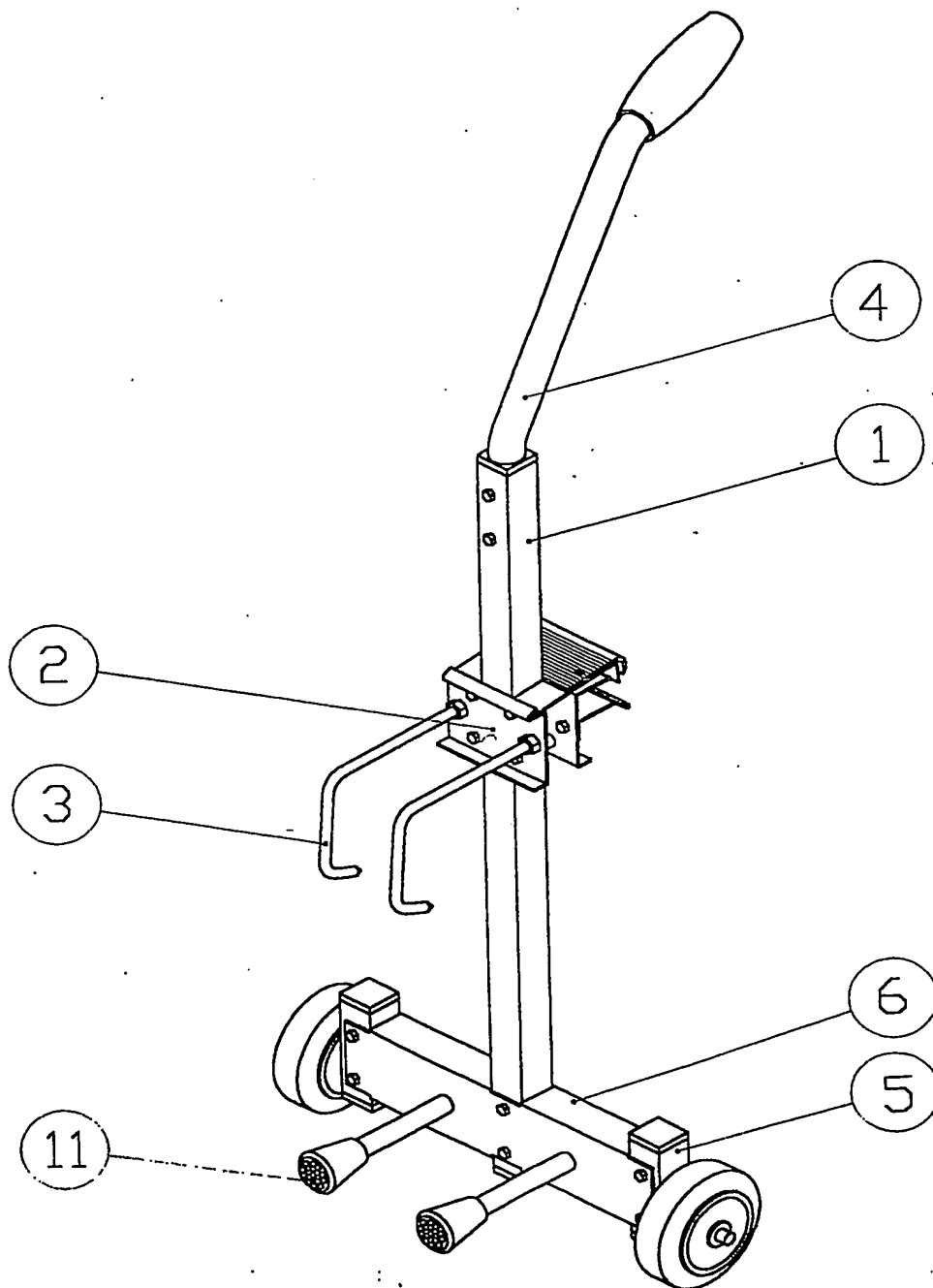


Fig 1.

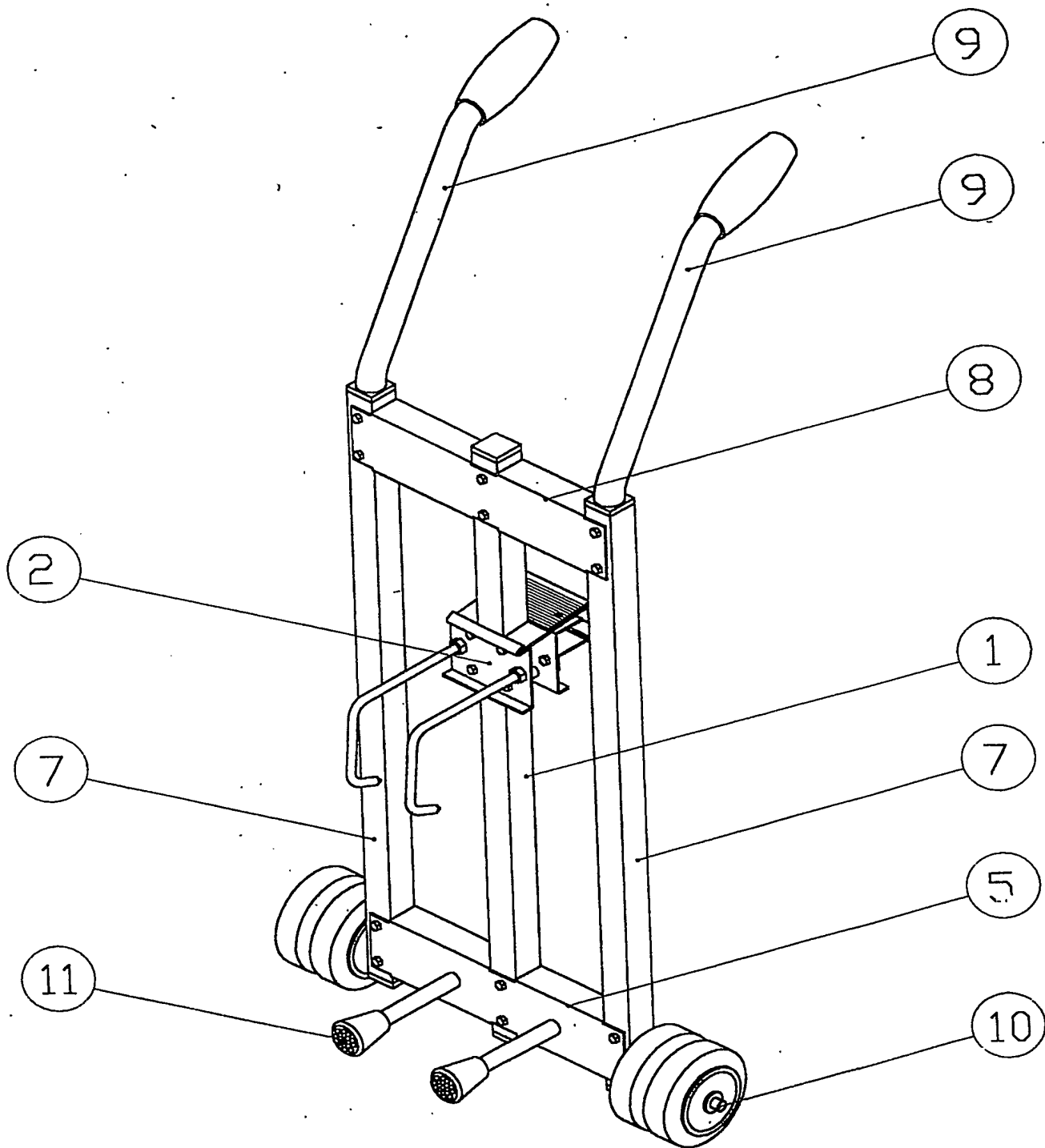
2/7
PATENT APPLICATION
Trolley for moving pots



Light Duty
Fig 2.

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PATENT APPLICATION

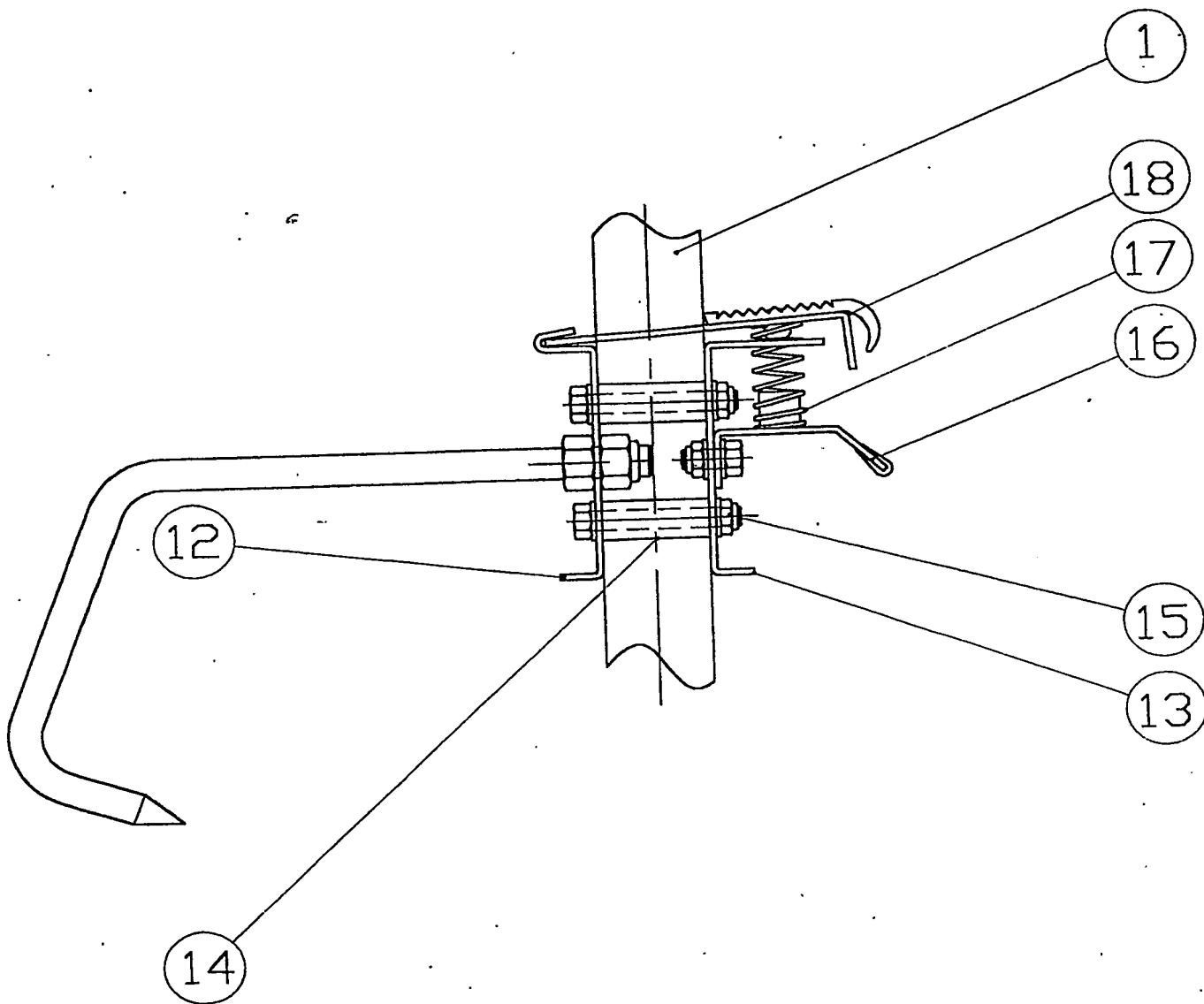
Trolley for moving pots



Heavy Duty
Fig 3.

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PATENT APPLICATION

Trolley for moving pots



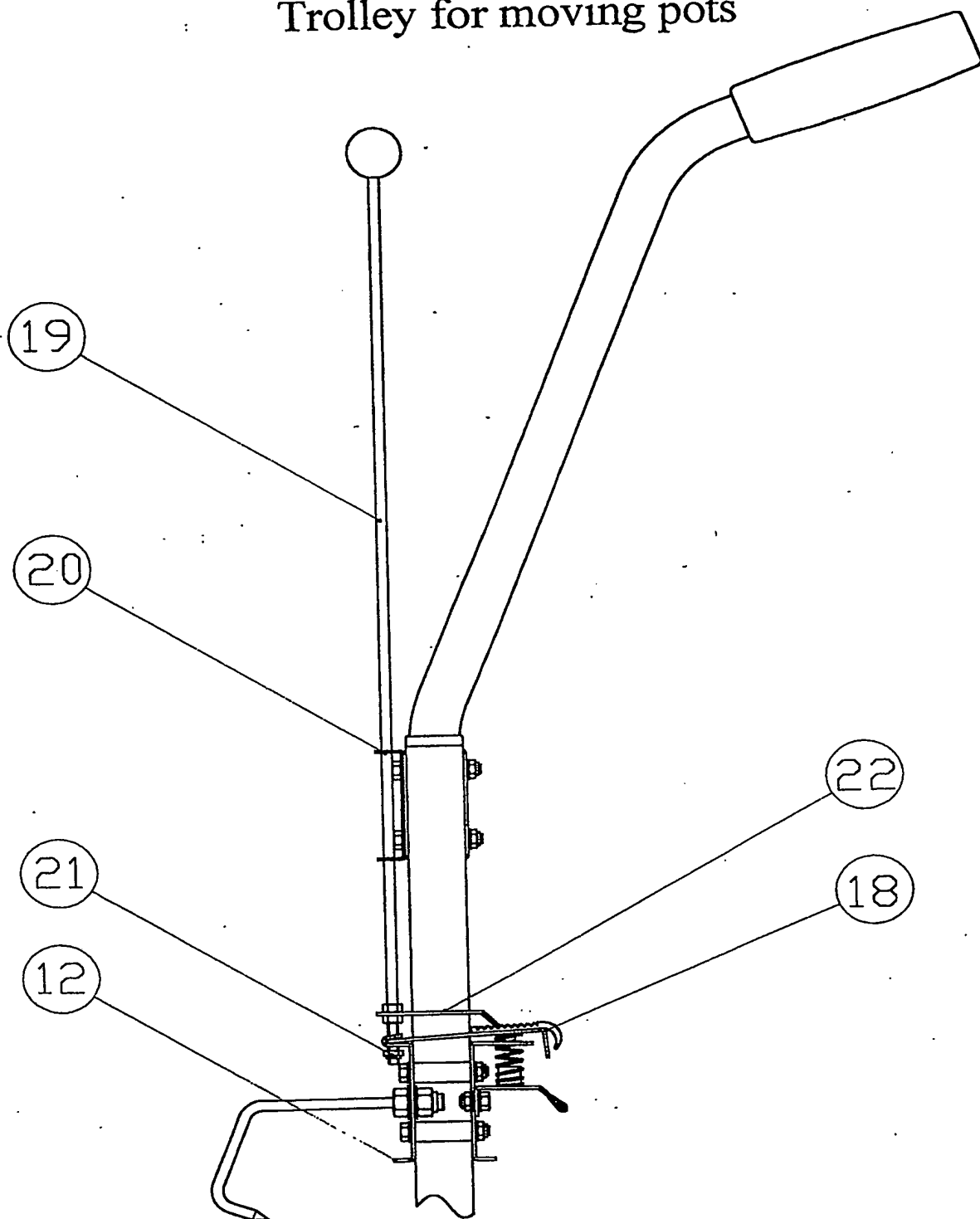
(2) Sliding hook mechanism

Fig 4.

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PATENT APPLICATION

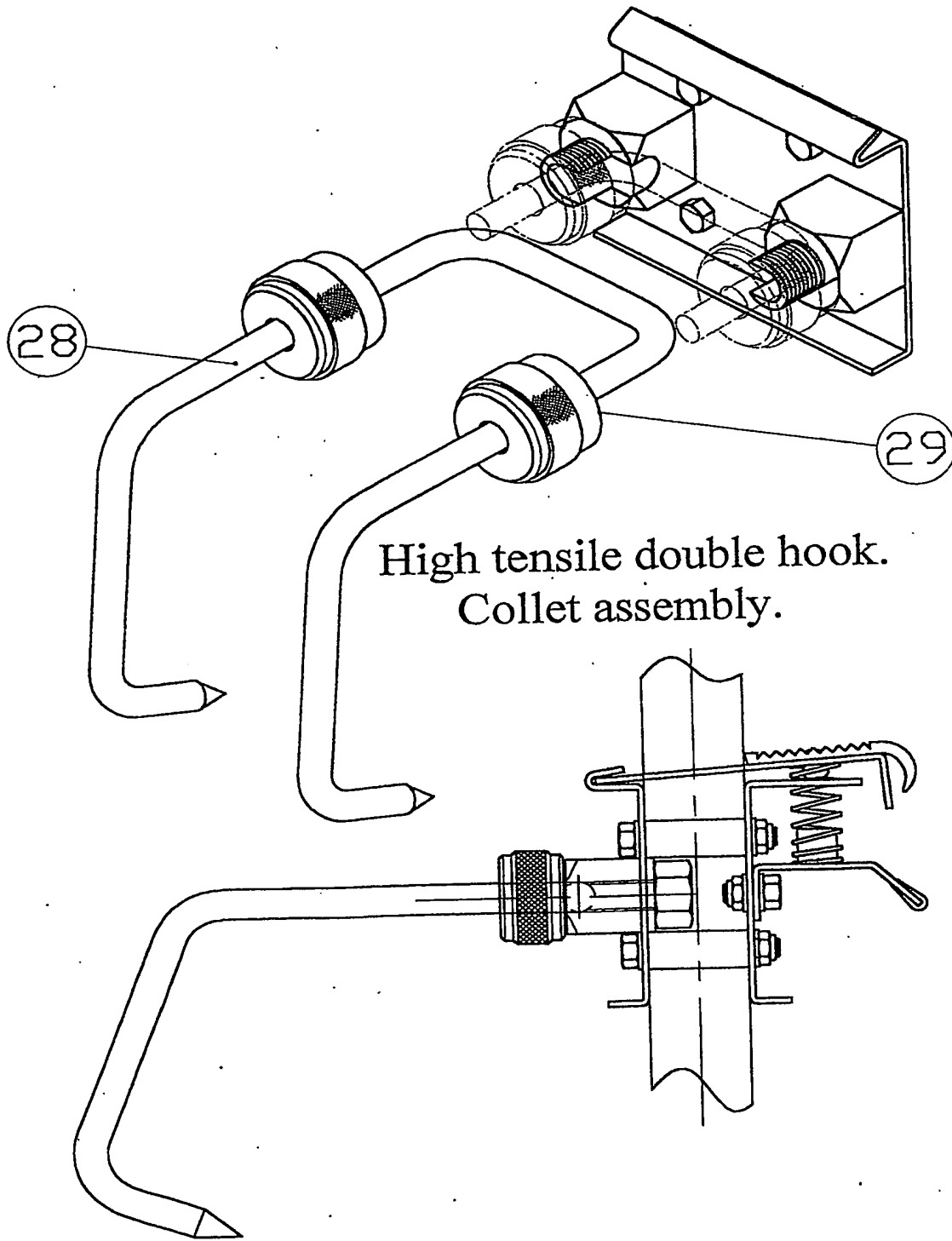
Trolley for moving pots



Addition to method of operation
Fig 5.

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PATENT APPLICATION

Trolley for moving pots



High tensile double hook.
Collet assembly.

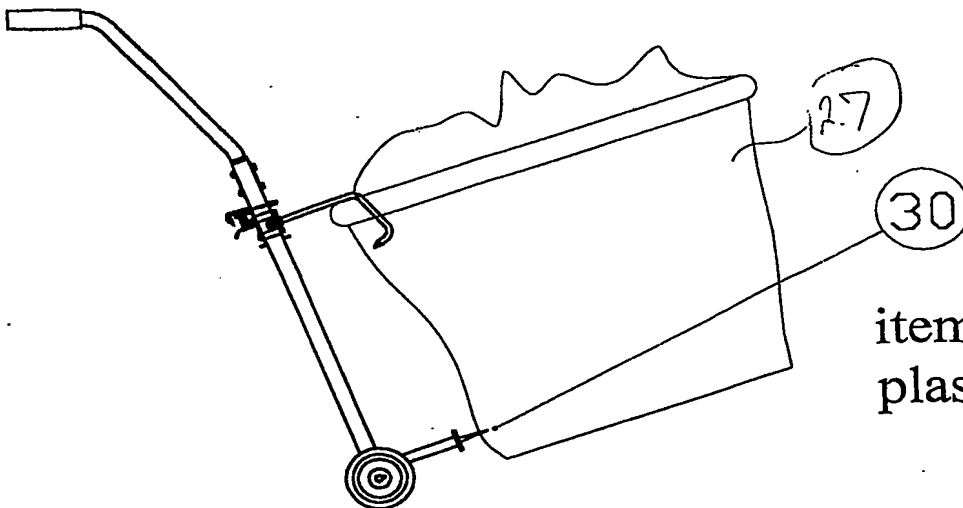
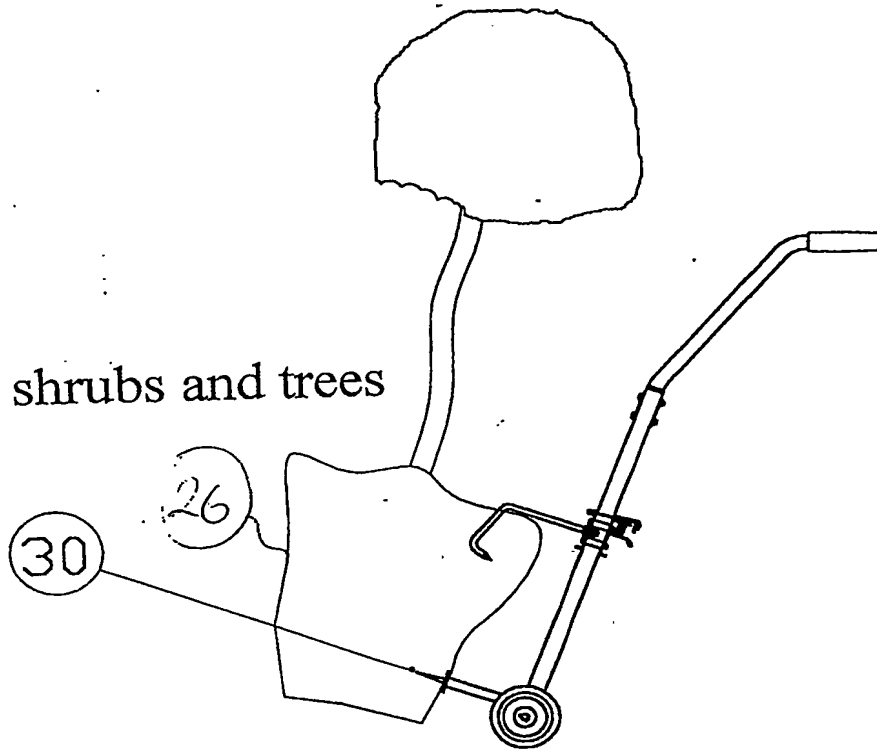
Alternative hook attachment

Fig 6.

7/7
PATENT APPLICATION

Trolley for moving pots

item (a). Small shrubs and trees



item (b). semi-rigid
plastic rubbish bins

Accessories

Fig 7.

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